



# CHEMISTRY NMDCAT

## (UNIT-8)

### TOPICS

- ✓ Fundamental Principles
- ✓ Hydrocarbons

- Q.1** The group which activates the benzene ring except
- OH
  - OCH<sub>3</sub>
  - NH<sub>2</sub>
  - C≡N
- Q.2** Which may not present as heteroatom in heterocyclic compounds generally
- Sulphur
  - Oxygen
  - Nitrogen
  - Bromine
- Q.3** The IUPAC name of the following compound is  
 $\text{H}_3\text{CCH}_2(\text{CH}_3)\text{C}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{CH}_3$
- 3-Ethyl-3-methylhexane
  - 2-Ethyl-3-methylhexane
  - 3-Methyl-3-ethylhexane
  - 4-Ethyl-2-methylhexane
- Q.4** The nucleophilicity of benzene ring is increased if \_\_\_\_\_ group is attached to it
- COR
  - CH<sub>3</sub>
  - CN
  - Cl
- Q.5** The common name of the compound  $\text{CH}_2(\text{COOH})_2$  is
- Malonic acid
  - Propan -1, 3-dioic acid
  - Propan -1, 3-oic acid
  - Both "A" and "C"
- Q.6** \_\_\_\_\_ is less reactive than benzene although it contains ortho, para directing group
- Nitrobenzene
  - Phenol
  - Chlorobenzene
  - Benzene sulphonic acid
- Q.7** The bond between carbon 2 and 3 in the  $\text{CH}_3 - \text{CH} = \text{CH}_2$  involves the hybridization
- sp<sup>2</sup> and sp<sup>2</sup>
  - sp and sp
  - sp and sp<sup>2</sup>
  - sp<sup>2</sup> and sp<sup>3</sup>
- Q.8** The most stable carbanion is
- $\text{CH}_3^-$
  - $(\text{CH}_3)_2\text{CH}^-$
  - $(\text{CH}_3)_3\text{C}^-$
  - $\text{CH}_3\text{CH}_2^-$
- Q.9** Which structures show a primary alcohol that cannot be dehydrated to form an alkene
- I       $\text{CH}_3\text{OH}$   
 II      $\text{CH}_3\text{CH}_2\text{OH}$   
 III     $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$
- Only I
  - Only II and III
  - Only I and II
  - Only I and III
- Q.10** Nitration of toluene in the presence of  $\text{H}_2\text{SO}_4$  at  $100^\circ\text{C}$  gives
- p-nitrotoluene
  - o-nitrotoluene
  - 2,4-dinitrotoluene
  - 2,4,6-trinitrotoluene
- Q.11** The combustion of one mole of  $\text{C}_3\text{H}_8$  will produce how many moles of  $\text{H}_2\text{O}$
- 4
  - 6
  - 3
  - 8
- Q.12** Electrophilic species
- Have complete electron shells
  - Have unshared electrons pairs
  - Are deficient in electrons
  - Are negatively charged
- Q.13** Which alkene could exist in cis and trans forms?
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH} = \text{CH}_2$
  - $$\begin{array}{c} \text{CH}_3\text{CH}_2\text{C} = \text{CH}_2 \\ | \\ \text{CH}_3 \end{array}$$
  - $\text{CH}_3\text{CH}_2\text{CH} = \text{CHCH}_3$
  - $$\begin{array}{c} \text{CH}_3\text{CH} = \text{CCH}_3 \\ | \\ \text{CH}_3 \end{array}$$





- Q.28** Which is an aromatic compound that contains only carbon and hydrogen atom.
- a. Toluene
  - b. n-hexane
  - c. Phenol
  - d. Aniline
- Q.29** The total number of sigma bonds between C–H in benzene are
- a. 6
  - b. 12
  - c. 3
  - d. 8
- Q.30** The Markownikof's rule is applicable only on
- a. 2-Butene
  - b. 2,3 Dimethyl-2-butene
  - c. 2-Bromo-3-chloro-2-butene
  - d. 2-Methyl-2-butene
- Q.31** The IUPAC name of the following compound is  
 $\text{H}_3\text{C}(\text{CH}_3)\text{C} = \text{CHCH}_2(\text{CH}_3)_2\text{CCH}_3$
- a. 2, 2, 5-Trimethyl-4-hexane
  - b. 2, 5, 5-Trimethyl-2-pentene
  - c. 2, 5, 5-Trimethyl-2-hexene
  - d. 2, 5-Dimethyl-2-heptene
- Q.32** The dehalogenation of vic-dihalide occurs when it is treated with 'Zn' dust in an anhydrous solvent like
- a.  $\text{CH}_3\text{COOH}$  or  $\text{CCl}_4$
  - b.  $\text{CH}_3\text{OH}$  or  $\text{FeBr}_3$
  - c.  $\text{CH}_3\text{COOH}$  or  $\text{CH}_3\text{OH}$
  - d.  $\text{Br}_2$  or  $\text{KMnO}_4$
- Q.33** The hybridization of any carbon atom in polyethylene is
- a.  $\text{sp}^2$  only
  - b.  $\text{sp}^2$  or  $\text{sp}^3$
  - c.  $\text{sp}^3$  only
  - d.  $\text{sp}$  only
- Q.34** Which one of the following is formed when  $\text{HBr}$  reacts with 2-butene
- a. 2-bromobutane
  - b. 1, 1-dibromobutane
  - c. 1-bromobutane
  - d. 1, 2-dibromobutane
- Q.35** The most reactive compound towards nitration is
- a.
  - b.
  - c.
  - d.
- Q.36** When 2-butene is heated with alkaline or acidic  $\text{KMnO}_4$  the product will be
- a. Two moles of acetic acid
  - b. Butan-2,3-diol
  - c. Two mole of formic acid
  - d. 2-butanol
- Q.37** The order of reactivity of halogens for alkanes is
- a.  $\text{F}_2 > \text{Cl}_2 > \text{Br}_2 > \text{I}_2$
  - b.  $\text{F}_2 > \text{Br}_2 > \text{Cl}_2 > \text{I}_2$
  - c.  $\text{F}_2 > \text{I}_2 > \text{Cl}_2 > \text{Br}_2$
  - d.  $\text{I}_2 > \text{Cl}_2 > \text{Br}_2 > \text{F}_2$
- Q.38** Which of the following group of elements and compounds represents all the possible combustion products of methane
- a. C, CO,  $\text{CO}_2$  and  $\text{H}_2\text{O}$
  - b. C, CO and  $\text{H}_2\text{O}$  only
  - c.  $\text{CO}_2$ , H<sub>2</sub> and  $\text{H}_2\text{O}$
  - d. CO,  $\text{CO}_2$ , H<sub>2</sub> and  $\text{H}_2\text{O}$
- Q.39** The ease of dehydrohalogenation of alkyl halides is in the order
- a.  $1^\circ > 2^\circ > 3^\circ$
  - b.  $2^\circ > 1^\circ > 3^\circ$
  - c.  $2^\circ > 3^\circ > 1^\circ$
  - d.  $3^\circ > 2^\circ > 1^\circ$
- Q.40** The reaction of chlorine with methane is carried out in the presence of light. What is the function of the light?
- a. To break the C – H bonds in methane
  - b. To break up the chlorine molecules into ions
  - c. To heat up the mixture
  - d. To break up the chlorine molecules into free radicals

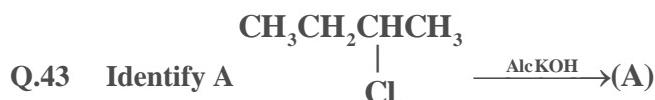


**Q.41** Which of the following decolorizes the alkaline/acidic  $\text{KMnO}_4$  solution

- a.  $\text{C}_3\text{H}_8$
- b.  $\text{C}_2\text{H}_4$
- c.  $\text{C}_2\text{H}_6$
- d.  $\text{C}_6\text{H}_6$

**Q.42** For which of the compounds below are cis-trans isomers possible?

- (1)  $\text{CH}_3\text{CH}=\text{CH}_2$
- (2)  $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_3$
- (3)  $\text{CH}_3\text{CH}=\text{CHCH}_3$
- a. Only 2
- b. Both 1 and 2
- c. Both 2 and 3
- d. All three



- a. 1-Butene
- b. 1-Butanol
- c. 2-Butene
- d. 2-Butanol

**Q.44** The condensed structural formula for 2,2-dimethyl butane is

- a.  $\text{C}_3\text{H}_8$
- b.  $\text{C}_6\text{H}_{14}$
- c.  $\text{CH}_3\text{C}(\text{CH}_3)_2\text{CH}_2\text{CH}_3$
- d.  $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}(\text{CH}_3)\text{CH}_3$

**Q.45** Which substance is not used as dehydrating agent for dehydration of alcohol to alkene

- a.  $\text{P}_2\text{O}_5$
- b.  $\text{H}_3\text{PO}_4$
- c.  $\text{H}_2\text{SO}_4$  (conc.)
- d.  $\text{ZnO}$

**Q.46** When toluene reacts with  $\text{Cl}_2$  in the presence of sunlight, the final product will be

- a. Benzotrichloride
- b. Benzyl chloride
- c. Benzal chloride
- d. Chlorobenzene



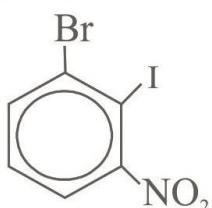
The "Z" in above reaction is

- a. Cis – 2 – Butene
- b. Cis – 1 – Butene
- c. Trans – 2 – Butene
- d. Trans – 1 – Butene

**Q.48** Which one of the following is a initiation step in the reaction between  $\text{CH}_4$  and  $\text{Cl}_2$

- a.  $\text{Cl}_2 \longrightarrow 2\dot{\text{Cl}}$
- b.  $\dot{\text{C}}\text{H}_3 + \text{Cl}_2 \longrightarrow \text{CH}_3\text{Cl} + \dot{\text{Cl}}$
- c.  $\dot{\text{C}}\text{H}_3 + \dot{\text{Cl}} \longrightarrow \text{CH}_3\text{Cl}$
- d.  $\dot{\text{C}}\text{H}_3 + \text{HCl} \longrightarrow \text{CH}_3\text{Cl} + \dot{\text{H}}$

**Q.49** The IUPAC name of the following compound is



- a. 2-Bromo-6-nitroiodobenzene
- b. 3-Bromo-2-iodonitrobenzene
- c. 2-Iodo-3-nitrobromobenzene
- d. 6-Bromo-2-nitroiodobenzene

**Q.50** Which one is readily sulphonated?

- a. Benzene
- b. Benzoic acid
- c. Benzaldehyde
- d. Chlorobenzene

# CTS-8 (PHY,CHEM)-KEY

Chemistry

1-D	11-A	21-B	31-C	41-B
2-D	12-C	22-A	32-C	42-C
3-A	13-C	23-A	33-C	43-C
4-B	14-C	24-C	34-A	44-C
5-A	15-B	25-D	35-C	45-D
6-C	16-C	26-B	36-A	46-H
7-D	17-D	27-B	37-A	47-C
8-A	18-D	28-A	38-A	48-H
9-A	19-B	29-B	39-D	49-B
10-D	20-B	30-D	40-D	50-A

## Physics

1-D	11-B	21-D	31-D	41-A
2-D	12-A	22-C	32-C	42-C
3-C	13-B	23-A	33-B	43-C
4-C	14-A	24-D	34-B	44-D
5-B	15-A	25-B	35-B	45-D
6-B	16-C	26-B	36-C	46-A
7-C	17-A	27-A	37-B	47-A
8-C	18-D	28-C	38-C	48-D
9-D	19-C	29-C	39-B	49-A
10-A	20-D	30-B	40-C	50-C